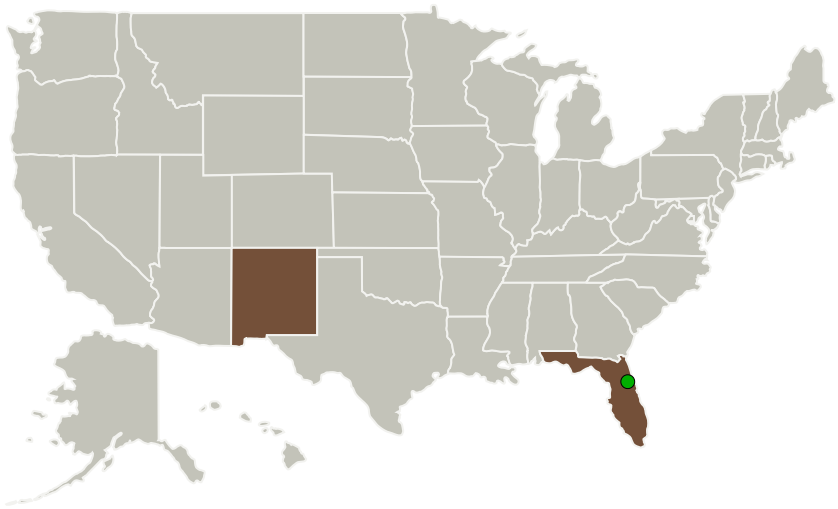
Magnetometer for Balloons and UAVs, Phase I

Completed Technology Project (2012 - 2012)

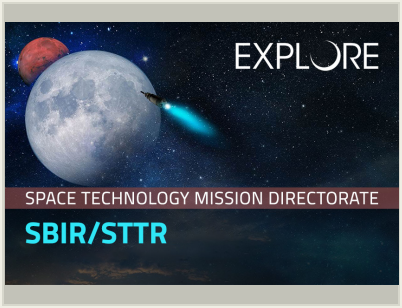
Project Introduction

This Phase I SBIR project will investigate a new, low-cost approach to atomic magnetometry that is suited for operation from UAVs and research balloons. Atomic magnetometers have been available for decades, but they remain expensive and relatively power-hungry, restricting their use to a small range of platforms. The proposed approach should result in a magnetometer selling at a cost point significantly below that of conventional atomic magnetometers that can be deployed on UAVs and stratospheric balloons. The Phase II research will involve constructing a prototype and flying it on a research balloon or UAV to study phenomena such as Electro-Magnetic Ion Cyclotron waves in the magnetosphere at altitudes of Data from these platforms will fill a scientific niche, as the Earth's field is undersampled at the spatial wavelengths of 30-100 km associated with stratospheric flight.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Southwest Sciences, Inc.	Lead Organization	Industry	Santa Fe, New Mexico
Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida



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Primary U.S. Work Locations	
Florida	New Mexico

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138286)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Southwest Sciences, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

David C Hovde

Co-Investigator:

David Hovde

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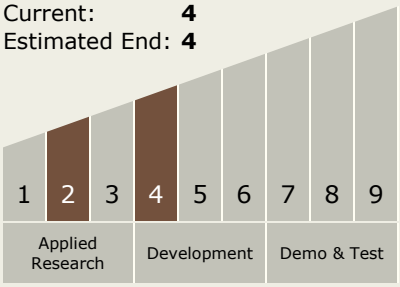
Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.1 Field and Particle Detectors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System